

# DHS Science and Technology Directorate

## Homemade Explosives Characterization Program

### Homemade Explosives have been used against civilian targets worldwide

Homemade Explosives (HMEs) can be deadly and are designed to cause destruction or death when used in improvised explosive devices. Numerous attacks such as the Madrid rail bombings in 2004 and the attempted attacks on U.S.-bound flights in 2006, led to a need to detect these explosives in the transportation sector. Unlike conventional threats, common household items could be used to make HMEs.

### Improved HME detection technologies must be developed

One of the Department of Homeland Security's (DHS) top priorities is the development and improvement of HME detection technologies. The DHS Science and Technology Directorate (S&T) assists the Transportation Security Administration (TSA) in determining the smallest amounts of HME materials that screening technologies can possibly detect.

S&T is currently collecting and analyzing HME threat "signatures" and providing information on specific HME threats to improve the development of next-generation detection technologies.

### Program accomplishments to date

S&T disseminated comprehensive Safety Data Reports, providing the protocols for safety, handling and thermal stability of both HMEs and conventional explosives.

S&T supported the development of tools and methods to aid in the evaluation of improved HME detection technology and established collaborative efforts with interagency and international partners to further the understanding of HME properties and our current detection capabilities.

### Milestones, deliverables, and transitioned products

S&T is also working to further characterize HME detection signatures to support TSA's screening systems and is working to determine HME explosives properties and threat characterization.

S&T is developing standard operating procedures for the safe handling and preparation of HME threat materials by technicians, which in turn, supports detection technology development. S&T began developing joint test programs with Israel and the United Kingdom (UK) in FY 2013 and will build a new HME test facility with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) and the Federal Bureau of Investigation (FBI) in FY 2014-15.



A cache of HMEs and materials found and destroyed by the FBI.

### Customers and partners

S&T is working closely with TSA, ATF, FBI and the Federal Protective Service. International work is conducted with its counterparts in Israel and the UK.



**Homeland  
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To learn more about the Homemade Explosives Characterization Program, email [sandt.explosives@dhs.gov](mailto:sandt.explosives@dhs.gov).